

DOCUMENT RESUME

ED 425 125

SP 038 177

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TITLE Kennesaw State University Classroom Technology Initiative.
PUB DATE 1998-00-00
NOTE 42p.
PUB TYPE Reports - Descriptive (141)
EDRS PRICE EDRS Price MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS College Faculty; *Computer Literacy; Computer Uses in Education; *Educational Technology; *Faculty Development; Higher Education; Intermediate Grades; Middle Schools; Preservice Teacher Education; Secondary Education; Teacher Collaboration; Teacher Improvement; Teachers
IDENTIFIERS Kennesaw State University GA; *Technology Integration

ABSTRACT

The purpose of the Kennesaw State University (KSU) Coca Cola/Board of Regents Classroom Technology Initiative was to develop preservice and inservice teachers' expertise in educational technology such as computers, presentation software, and multimedia and to teach educators to apply those skills to content instruction. Project goals were to determine the types of technology currently being used in area middle and high-school classrooms, offer technical skills instruction to teachers and college faculty, apply the new skills to the integration of technology into instruction, and evaluate program impact. The project involved faculty from the professional teacher education unit at KSU, public school teachers from six area school systems, and middle and secondary school preservice teachers in KSU's Bagwell College of Education. The project included two phases. Phase 1 involved determining skill levels and types of technology available in middle and secondary classrooms, identifying faculty, and offering both hardware and software technical skills instruction to classroom teachers and college faculty. Phase 2 involved forming collaborative teams to implement the projects, implementing the projects, and providing additional skills training as needed. Projects were evaluated to learn more about the potential for technology integration to help middle-school, high-school, and college-level students. Three attachments, which comprise the bulk of the paper, contain project descriptions, the Technology Integration Survey, and the Technology Integration Survey results. (SM)

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**Kennesaw State University Classroom
Technology Initiative**

**AACTE
Innovative Use of Technology Award**

Submitted by:

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KENNESAW STATE UNIVERSITY CLASSROOM TECHNOLOGY INITIATIVE

The purpose of the Kennesaw State University (KSU) Coca Cola/Board of Regents Classroom Technology Initiative (CTI) was to develop the expertise in educational technology such as computer utilization, presentation software, and multi-media and to apply these skills to content instruction involving the three groups primary to teacher preparation at Kennesaw State University:

- * Professional Teacher Education Unit at Kennesaw State University including faculty from the College of Education, the College of Arts, Humanities and Social Sciences, and the College of Science and Mathematics.
- * Public school teachers in elementary, middle and secondary schools in six area school systems: Bartow County Schools, Cartersville City Schools, Cherokee County Schools, Cobb County Schools, Marietta City Schools, and Paulding County Schools.
- * Middle and secondary (4-12) pre-service teachers in the Bagwell College of Education at Kennesaw State University. Approximately 1,700 students are pursuing undergraduate degrees in education and 400 students are enrolled in graduate education programs.

The KSU CTI project was designed in two phases. Phase I included determining skill levels and types of technology available in middle and secondary classrooms, identifying faculty, and offering both hardware and software technical skills instruction to the classroom teachers and college faculty. Phase II included forming collaborative teams to implement the projects and actual completion and additional skills training as needed. Finally, projects were evaluated in terms of learning more about the potential for technology integration in middle grades, secondary and college level students.

Phase I

- 1. Identify schools and teachers currently using innovative technology with KSU's service area.**

Each of the Technology Coordinators from the six school systems were surveyed in November 1995 and again in May 1997 about the use of technology in the school systems' classrooms. The Technology Coordinators were also asked to nominate three teachers from their systems to participate in the project.

- 2. Using the state-funded Educational Technology Center (ETC) and the Teacher Resource and Activity Center (TRAC), teach faculty from both settings the necessary basic educational technology competencies.**

A number of workshops and educational sessions were conducted by ETC and TRAC and are available to all PTEU faculty, in-service teachers from the service area schools, and pre-service teachers. In addition to scheduled workshops and formal training situations, the TRAC Technology Learning Lab offers training on an on-going, individual basis.

- 3. Increase the use of emerging technologies for instructional delivery in the 4-12 teacher preparation program.**

The KSU Bagwell College of Education faculty have continued to explore and incorporate technology as specific requirements and learning outcomes in courses. Faculty will be required to incorporate technology into their teaching portfolios. As the College moves to semesters in the Fall 1998, technology-related skills will be

incorporated in courses throughout the program of study rather than as one stand-alone course.

4. Identify the participants for Phase II.

At least three teachers from each school system were recommended by each school system technology coordinator; several recommended more than three. A total of 17 teachers from the service area school systems were identified from the initial pool of applicants. KSU's Bagwell College of Education sent letters to each teacher along with a 4-12 Public School Teacher participation/approval form. KSU PTEU faculty were also recruited and identified.

Phase II

1. Identify the project teams.

Eleven collaborative project teams, comprised of service area classroom teachers, KSU faculty, and pre-service teachers, were formed and introduced at a kick-off event in June, 1996.

2. Skill refinement was provided to meet teams' project needs.

Participants were provided with resources available through TRAC and ETC. In addition, they were encouraged to contact the CTI coordinator for special needs.

3. Project teams develop goals and outline their application projects.

During the kick-off event, teams began working on project plans. Project teams were asked to provide the project plan by November. Nine project plans were submitted by collaborative KSU faculty/classroom teacher teams.

4. Implementation of team's projects.

All nine projects were implemented between Fall 1996 and Spring 1997.

Statement of Goals

The goals of the KSU Coca Cola/Board of Regents CTI project were as follows:

- Determine the types of technology currently being used in service area middle grades and secondary classrooms
- Offer technical skills instruction to classroom teachers and their college faculty colleagues
- Apply those newly acquired skills to the integration of technology into instruction
- Evaluate the impact of the integration on
 - a) learning of grades 4-12 students and pre-service teachers and
 - b) further instruction by 4-1 classroom and college teachers

How the Goals Were Met

Goal 1: Determine the types of technology currently being used in service area middle grades and secondary classrooms

Classroom teachers in the six public school systems were surveyed in November and again in May 1997 concerning the types of hardware and software available and in use in their school systems, specific software packages and technologies used in the school systems, and opinions regarding technology skills needed by teachers and technologies needed in classrooms. The Technology Integration Survey follow-up provided insight on the trends and shifts in technology use in our service area school systems. This information is valuable in teaching pre-service teaches about technology as it is used in schools. Therefore, it is valuable for faculty teaching pre-service teachers.

Survey results were compiled and shared with CTI participants, the technology coordinators from each school system and with pre-service teachers at KSU.

Goal 2: Offer technical skills instruction to classroom teachers and their college faculty colleagues.

Technology training opportunities are continually offered at KSU to PTEU faculty, in-service teachers, and pre-service teachers through collaborative efforts between the Teacher Resource Activity Center (TRAC), Educational Technology Center (ETC), and Classroom Technology Initiative (CTI). The range of activities and offerings illustrate the positive nature of the collaboration and synergy between these entities.

The PTEU faculty were surveyed in November 1995 and again in May 1997 to assess the faculty technology use and training preferences. The PTEU Technology Integration Survey provided insight into the technologies being used by faculty, the technology they are interested in learning more about, and preferences for training in terms of time and situation (individualized or workshops). During the past year, PowerPoint and Internet training were topics that drew the largest number of participants. Other technology requests were met on an individual basis. Faculty who responded to the survey were positive about the TECHNO-PAL approach with 18 indicating they would like to be able to set up and appointment for specific technology training with another individual who was facile with a particular software package.

Goal 3: Apply those newly acquired skills to the infusion of technology into instruction.

KSU firmly believes that technology integration requires situated experiences that are not separated from classroom learning. The Bagwell College of Education will initiate an infusion model for the use of technology in all professional teacher education courses as the University converts from the quarter to the semester system Fall 1998. The CTI projects were designed as classroom based collaborative projects, not technology training separated from the learning environment. Teams were formed, comprised of KSU faculty and classroom teachers from six school systems. A description of the projects, team members, and summary of the results from each project is provided in the attachments.

Goal 4: Evaluate the impact of the infusion of technology on

- a) learning of grades 4-12 students and pre-service teachers and**
- b) further instruction by 4-12 classroom and college teachers**

The final reports submitted by each mini-project were compiled to provide a summative evaluation of the impact of infusion of technology both on the learning of grades 4-12 students and pre-service teachers and further instruction by 4-12 classrooms and college teachers. This evaluation is provided in the attachments.

Staffing

Administratively, the Classroom Technology Initiative was housed in the Kennesaw State University's Bagwell College of Education under the responsibility of Dr. Deborah Wallace, Dean of the Bagwell College of Education and Dr. Jane McHaney, Assistant Dean. Beverley Taylor served as the Project Director.

Project Assessment

Overall, this project was successful in three broad areas: 1) it achieved high levels of collaboration among in-service teachers, College of Education faculty and College of Arts, Humanities and Social Sciences and College of Math and Science faculty, 2) the proposed collaborative classroom technology projects were successfully completed and 3) increasing requirements and integration are achieved through the curriculum changes.

The project's success was enhanced through the following:

- The College of Education already had established working relationships with six school systems in their service area. Through the PTEU, working relationships were already in place between the College of Education faculty and their peers who taught subject matter content.
- Service area school systems were brought into the planning and execution phase early and felt ownership in the project.
- The College of Education stayed in close communication, especially with school systems and in-service members of the group. Once the project teams were formed communication continued. To achieve a high level of collaboration this is necessary.

The collaboration achieved by the Classroom Technology Project is one of the strongest points and illustrates true partnerships through its classroom projects.

Classroom Technology Web-site

<http://www.gsu.edu/~mstbmtx/cti/ctimain.htm>

Future Directions

The Bagwell College of Education will follow-up the CTI projects with pre-service field experiences or student teaching placements with the CTI participants.

These opportunities will further the collaboration initiated by the projects. A video is being developed which will highlight and show examples of the project teachers using technology in their classrooms and the students using technology in different content area lessons. The technology survey results are also being shared with the PTEU faculty and pre-service teachers so they are aware of how teachers are presently using technology in the six school systems.

ATTACHMENTS

*** Project Descriptions**

***Technology Integration Survey**

***Technology Integration Survey Results**

The following provides a short synopsis of each project including project highlights and information dissemination through presentations, conferences, publications, or other activities. It is easy to see from reading the evaluations that some projects were highly successful and will likely continue beyond this grant.

Integrating Technology Using a Rain Forest Theme Cass Middle School, 7th Grade Class Bartow County Schools	
Project Participants	• Teacher: Sheila Barnes • KSU Faculty: Dr. Kim Loomis, Middle Grades & Science Education

Project Synopsis

Seeking to examine effective integration of technology in 7th grade life science curriculum, this project developed a series of 22 learning centers focusing on the rain forest. The centers addressed different learning styles and thinking skills by asking students to observe, organize, analyze, create, and research. All students (regular, inclusion, and gifted) participated in this interdisciplinary project.

Students were excited to move from center to center and were especially enthused to visit the computer centers. An indication of this excitement was evident in that at the end of each class period, students who had not finished a particular computer center had to be assured that they could complete it the next day. My homeroom class asked to use the software for weeks after the rain forest unit was completed. Also, several students asked for computer passes that allowed them access to the software during their free time." Test scores also indicated success in learning with the average test score on the rain forest unit being one of the highest in the school year.

Each student completed a survey to critique the centers on what information they learned, what they found useful, and what their least favorite center was. One particular center they identified as a favorite involved identifying everyday items that we use which are products from the rain forest.

By varying the computer programs, hands on activities, and integrating the four academic disciplines, each student met success somewhere in one or more of the centers. Inclusion students were able to find many centers to work alone at or receive help from partners and/or inclusion teachers. After completion of our rain forest unit, lower level students showed greater confidence in accessing the computers. They no longer waited for another student to get onto a computer but instead rushed in to get to a computer themselves. Several computer programs were especially helpful to my inclusion students with lower level reading abilities because the programs had the options for the text to be read aloud by the computer.

Dr. Loomis viewed my center set up and made suggestions and gave advice for better utilizing my computers. Also, she gave me assistance in integrating the math and social studies disciplines into my center activities. Dr. Loomis suggested giving a pre- and post-test on a general rain forest theme. We discussed the problem of not testing specific subject matter yet testing for an overall view of the rain forest destruction and problems that result.

Dr. Loomis was interested in seeing how a "real teacher" integrated technology into instruction. The rain forest unit was a significant undertaking in implementing the use of computer centers and its design was consistent with current thinking regarding integrating technology into instruction. Instead of letting technology be the focus of the entire lesson, it was just another instructional tool to be utilized with others for learning. Dr. Loomis has received much anecdotal information and practical advice about the project that she will be able to pass on to her pre-service teachers studying instructional technology. In addition, Dr. Loomis will be able to help other teachers who wish to design similar units of instruction based on the rain forest unit experience.

Project Highlights	After studying the rain forest using the centers, our students were motivated to do something about the environmental impact of rain forests destruction. Along with 3 science teachers, the students held a dance to raise funds to buy acres of the rain forest. Students donated snacks and soft drinks to sell at the dance. From the proceeds of the dance, they were able to buy 15 acres of rain forest in Panatal. We have the certificates framed in our rooms.
Information Dissemination	• The project was presented as part of a Saturday seminar for the Regional Institute for School Enhancement (RISE) Super Saturday workshops. • Planned: DOE Educational Technology Conference at KSU on October 4, 1997.

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A Nation Divided: The Civil War Cartersville Elementary School, 4th Grade Class Cartersville City Schools	
Project Participants	• Teacher: Elese Allen • KSU Faculty: Dr. George Hess, Early Childhood Education • Pre-service Teacher: Leigh Barnes, Early Childhood Education
Project Synopsis Students worked in groups to create a multi-media presentations using KidPix that included narration, music from the Civil War, and pictures of Civil War historical sites in Georgia. The goal was to make the history of the Civil War become more real to the students and further their understanding of this time period. After working with KidPix almost all year--doing a classroom project and a PenPal project--it was time to start the Civil War project. The project team decided to make some changes in the original assignment described in the project statement. Due to a lack of memory and the inconsistencies of Internet in our classroom we decided not to attempt to download historical Civil War sites in Georgia. Instead, each student chose someone who had an impact on the Civil War to research. Each student had to write a research paper, download a picture of his person to a KidPix slide, decorate the slide in a way that represented the Civil War, write a 30 second script for his slide, and pick a Civil War song from a compact disc that represented his person in some way. It took a lot of time but they did it. After all of the individual slides were completed, we combined them into one slide show. The students were divided into groups to create the beginning slide, the ending slide, as well as all the slides needed in between. There were some arguments but I think the end product is super. They were all very proud of their show and seemed to have learned a lot not only about their person but everyone else's too. Students brought in video tapes for me to make them their own personal copy of the project to keep.	
Project Highlights	Students created a multimedia video presentation to send to their pen pals in Evansville, Indiana. They decided they could teach their pen pals how to do the <i>Macarena</i> through still pictures and verbal directions. Taking still pictures of each individual step of the macarena with a QuickTake camera, the students described the step orally while the slide was being shown. The students really enjoyed this project and our pen pals were very IMPRESSED. The video became somewhat famous throughout our school. It was viewed by many and it was used to show to the visiting SACs committee.
Information Dissemination • <i>Class Album</i>, a Kid Pix presentation about the students and class, was shown to parents during Open House, September 10, 1996. A video was made of the program for students to check out and take home to show to the parents who were not able to attend Open House. The "Class Album" ran continuously throughout Open House. The parents seemed to enjoy it and be impressed. • Our project was shared with other faculty members in our school as well as the visiting SACs committee. Many teachers have become interested in KidPix and have created their own class projects as a result. • Planned: DOE Educational Technology Conference at KSU on October 4, 1997.	

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Hailstones and Halibut Bones Cartersville Elementary School, 5th Grade Music Class Cartersville City Schools	
Project Participants	• Teacher: Angee Tonsmeire and Judy Steed • KSU Faculty: Barbara Hammond, Music & Music Education • Pre-service Teachers: Music Education Classes
Project Synopsis This project combined vocal and instrumental music, visual arts, and technology to creatively express the ideas in excerpts of poetry from the book, <i>Hailstones And Halibut Bones</i>. The paint and animation program, <i>Kid Pix</i>, was used to create this video slide show using a Macintosh 5300 with an audio-visual package. Fifth grade students in Judy Steed's Challenge class at Cartersville Elementary created visual images that represented each color in the poetry excerpts. The students played and sang an interlude between each verse on the Orff instruments and also created sound effects for various ideas represented in this poem using contrasting tone colors and timbres. The interlude, "Colors Of The Rainbow" was created and composed by Barbara Hammond, Kennesaw Instructor Of Music Education. Students and teachers contributed in creating the accompaniment parts for the Orff instruments. The music and visual images were presented in rondo form (ABACADA). This production represents a successful marriage of music, visual arts, language arts, creative expression, and technology. <i>Hailstone And Halibut Bones</i> was a successful learning experience for all involved. We had hoped that students and teachers involved this project would increase their knowledge of working technology. Not only did we increase our proficiency with the technology required to create this work, but our proficiency exceeded our original expectations. Working with the Kid Pix software became a comfortable part of our everyday routine. Using the computer as a tool for creative expression was challenging at first, but was successfully mastered.	
Project Highlights	The Cartersville Elementary technology project during the academic year 1996 97 served as a wonderful collaborative partnership with the Music Department of Kennesaw State University. Barbara Hammond, Instructor of Music Education, had many opportunities to interact with the children and to provide input into the creative process. In addition, on several occasions, music education students from KSU traveled to Cartersville Elementary to observe the children actively making musical decisions.
Information Dissemination • <i>Hailstones and Halibut Bones</i>, performed live by Cartersville Elementary students at the recital hall in the music department at Kennesaw State University for KSU students, faculty, and visitors, April 15, 1997. The slide show was then presented to the group via a computer, data projector and stereo speakers. A question and answer session followed. From the perspective of the KSU Music Department, this opportunity to extend a pedagogical vision into the community was extremely valuable. • <i>Hailstones and Halibut Bones</i>, Classroom Technology Initiative project. Regional Institute for School Enhancement. Super Saturday Workshop at KSU, May 3, 1997. • <i>Hailstones and Halibut Bones</i>, Classroom Technology Initiative project, Summerfest at KSU, June 12, 1997. • Planned: DOE Educational Technology Conference at KSU on October 4, 1997.	

KREST: Kids Reaching Exemplary Standards Together Woodstock Middle School, 7th Grade Students Cherokee County Schools	
Project Participants	• Teachers: Gloria Wyatt and John Wyatt • KSU Faculty: Pam Cole, Middle Grades & English Education
Project Synopsis Seventh grade students were encouraged to examine their values and beliefs and consider what makes an exemplary seventh grader. They selected and set goals that they believed to be exemplary, promoted those goals through various language arts assignments, and shared their goals and ideas with others. Technology was used to gather and communicate information and to complete assigned activities. When we got the Classroom Technology Initiative information, it seemed to be the perfect avenue for putting together a project that would encourage students to make better choices. It provided the support we needed from the university, and sponsor names, like Coca Cola and the University System of Georgia, added credibility to the project in the minds of our students. Our third partner in the project, Dr. Pam Cole, met with us to share ideas that would further the project objectives. Technology was our main means of research and communication.	
Project Highlights	Students selected respected community and world personalities and wrote letters to them asking for input on experiences they have had regarding KREST goals. While none of the sports or entertainment figures responded, they did receive a letter from President Clinton, an e-mail from David Pogue at MacWorld Magazine, and letters from their principal, and local community leaders. KSU pre-service teachers developed a questionnaire to administer to Woodstock Middle School students that would gather data regarding the KREST goals. KSU pre-service teachers also researched and supplied a list of quality adolescent literature which included books that contained material related to KREST.
Information Dissemination • Produced a KREST video. • Planned: DOE Educational Technology Conference at KSU on October 4, 1997.	

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Internet: Research and Discovery by Discipline Marie Archer Teasley Middle School, 7th and 8th Grade Classes Cherokee County Schools	
Project Participants	• Teacher: Jim Rae • KSU Faculty: Diana Poore, Early Childhood Education and TRAC
Project Synopsis Pre-service and in-service teachers were provided with an annotated bibliography of World Wide Web sites that will enable them to access lesson plans, enrichment activities, research and electronic mail sites for students. A booklet of World Wide Web sites was developed that will correlate the QCC and textbooks used in Cherokee and Cobb Counties.	
Project Highlights	In the beginning of the CTI project, my objective was to learn more about the Internet, its sites and how I could use these sites to better educate and inform the pre-service teachers and faculty about resources available to them. I had some experience using the Internet in locating sites and adapting them to lesson plans and uses for the classroom. During this project, I discovered there were many sites that were very useful for classroom integration, but there were many sites that implied that they were educationally sound, but were not. I became more selective in the sites that I felt were useful for the classroom. I began using a rubric in the evaluation of these sites instead of just going by my own feelings of what I felt was appropriate for the classroom.
Information Dissemination • Manual available in TRAC for KSU faculty, pre-service teachers, and TRAC members. • <i>Infusing Technology into the 21st Century Classroom</i>, "Georgia Middle School Conference, February 7, 1997. • <i>A Child's Treasure Chest to the World, Infusing Technology into the 21st Century Classroom</i>, Association for Childhood Education International, April 10, 1997. • Proposals will be developed for more international and state conferences for the 1997-1998 school year. • Planned: DOE Educational Technology Conference at KSU on October 4, 1997.	

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Multimedia Presentation Projects: Presidential Elections Dickerson Middle School, 6th and 7th Grade Classes Cobb County Schools	
Project Participants	• Teachers: Pat Holliday and Barbara Humphreys • KSU Faculty: Dr. M.L. Anderegg, Early Childhood Education Dr. Susan Brown, Early Childhood Education Dr. Randy Elmore, Middle Grades Education
Project Synopsis Students selected a topic on presidential elections, researched the topic, planned the appropriate graphics, text, audio, and video to be used in the project, and collaborated with other group. Students learned about the election process and how researching timely topics can assist in the voting decision. In a twelve-week period, students learned multimedia authoring and research skills and lessons on the election process. During the first two weeks of Fall Quarter, sixth grade students reviewed research skills and used print and electronic media to gather information for their research projects. Students concentrated on gathering information from CD-ROM and the Internet. Next, students learned how to plan a storyboard for their projects. They also learned how to clip pictures from CD-ROM, plan and execute audio, type their text and link the project together into a cohesive unit. This took the bulk of the quarter. Finally, students presented their projects to their classmates, teachers, parents, KSU faculty and others. During this oral presentation, they explained what they had learned and why they included certain pictures, audio and music. The students exuded a sense of pride in their work during these presentations.	
Project Highlights	One faculty member was tutored by a Dickerson student in the use of Linkway to the end that she produced a short Linkway presentation. An extension of the original goals was the examination of the kinds of topics the medium lends itself to and how those might, within pedagogical restraints, be reorganized for stronger learning outcomes. Discussions about how to, when to, and what to teach were stimulating for all faculty members. Both faculties agreed that one factor which restrained their interactions was the lack of release time for either to provide additional mutual planning times.
Information Dissemination • Class Presentations for KSU faculty, family, and visitors • The multi-media class has been disseminated throughout the county in staff development classes during the past two years. One class was taught to teachers at Dickerson Middle School, two others were open to teachers throughout the county. Additionally, the multi-media class has been presented on Cobb County in service days and technology fairs and conferences. • In the future, sharing of the project and training of teachers in the multi-media class will continue. • Planned: DOE Educational Technology Conference at KSU on October 4, 1997.	

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Integrating Microcomputer Based Labs (MBLs) Lassiter High School, 11th Grade Cobb County Schools	
Project Participants	• Teacher: Phyllis Boudreaux • KSU Faculty: Dr. Russell Akridge, Science & Science Education
Project Synopsis The project was about integrating MBL techniques into the teaching of science in high school settings and providing pre-service teachers with training in the use of these devices. In a laboratory that now includes one dozen computers, Phyllis Boudreaux also has three types of interface devices that provide the capability of training pre-service teachers on either IBM or Macintosh formats. High schools students mastered concepts and analyzed data in the laboratory setting. Students correctly analyzed position, velocity, and acceleration graphs as they studied motion and kinematics. "The past five years of my career have been used to gather, compile, and test methods to be used for teaching science with computers. I have now acquired a wealth of hardware, software, curricular materials, and strategies for the effective use of computers in science education," Ms. Boudreaux said. This project has not been implemented pre-service teachers, but that aspect is planned for Fall 1997. She plans to host and train pre-service teachers from KSU. The approach to be taken is the training of pre-service teachers for a period of two weeks at a time, side-by-side with my own students. This will provide the pre-service teachers with hands on experience with cutting-edge technology used in a very modern physics laboratory. "I also hope to model good teaching for the pre-service teachers as they observe my techniques and interactions with my students," Ms. Boudreaux said.	
Project Highlights	Students and teachers alike learn by doing. The only way to learn science well is to do so by using these new constructivist approaches. It is important to realize that students must learn science through inquiry and discovery and not by lecture and memorization. It is my desire to assist as many teachers as possible as we all shift the paradigm and use technology effectively in science classrooms.
Information Dissemination • Online with Education '97 in the Georgia State University. • Planned: DOE Educational Technology Conference at KSU on October 4, 1997.	

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Research Writing Using Computer Technology A.L. Burruss Elementary School, 4th Grade Marietta City Schools	
Project Participants	• Teacher: Michael Holst • KSU Faculty: John Ouyang, Early Childhood Education
Project Synopsis Students were involved in research writing using computer technology. With this project, students took responsibility for learning, for coping with new technologies, and for working cooperatively. Students used computers to collect data, to plan writing, to write research reports, and to present research results with a multimedia medium. "I wanted the students to understand the importance of the computer in developing and writing I would consider excellent for their first time. The students enjoyed the process and learned how to effectively do research and create papers. The last stage that I was hoping for the students to accomplish was to create multimedia presentations," Holst said. "From talking to the parents and reviewing the information that I have, I believe the project showed that computers can be effectively used in the classroom. I think this project forced me to develop a working model that eventually could be used by others effectively. I would have appreciated more input, feedback, and assistance from the university. As I explained earlier to the project coordinator, I had a notion that the computer could be used effectively on a grand scale." The elementary teacher was motivated to use technology in the classroom and the students were engaged in learning with computer technology. A six-phase implementation module was developed, tested, and revised in the classroom. These implementation strategies and experience were presented and shared with Georgia educators.	
Project Highlights	When my students first sat down to do research, they copied from dictionaries and encyclopedias. They made oral presentations reading information they did not understand. By the end of the year, they were sitting down developing an outline, researching and taking notes, and creating a research paper that was their own. They gained an understanding of the information and conversed with each other about the topic. Yes, I think the students gained an enormous amount of information. They gained not only content in the academic areas but also in how to communicate through writing. With few modifications this program will be able to reach its potential.
Information Dissemination • The module was presented at the 8th International Conference of the Society for Information Technology and Teacher Education. • The paper was published in Jerry Willis, Jerry Price, and Sara McNeil (Ed.). (1997). <u>Technology and Teacher Education Annual</u> (ISBN 1-880094-25-8). Charlottesville, VA: AACE. • The implementation strategies and experience were presented and shared with Georgia educators at the conference of Microcomputers Online with Education '97, Georgia State University. • The project was presented as part of a Saturday seminar for the Regional Institute for School Enhancement (RISE) Super Saturday workshops. • Planned: DOE Educational Technology Conference at KSU on October 4, 1997.	

Democracy Through Technology South Paulding Middle School, All Grades Paulding County Schools	
Project Highlights	• Teacher: Roy Perren (now Assistant Principal) • KSU Faculty: Dr. Ann Smith, Acting Chair, Secondary & Middle Grades Education
Project Synopsis The purpose of the Democracy Through Technology Project was to allow students to practice participating in democracy utilizing technology as a tool. The project assisted middle school students in developing an understanding of democratic concepts through the interaction of technology. Students voted for student council officers and elected the homecoming queen and princess using a program written in basic. As stated in the title of the project, students experienced democracy through technology. The goal of the project was to learn how to utilize computer technology as a tool in the classroom. That goal was met. There are many ways in which technology may be utilized in the classroom. This project required the teacher to learn how to program in Q Basic. This proved to be an interesting but difficult task. However once the knowledge was gained, it became clear that many programs may be written in this simple computer language for students. Teachers found the program especially helpful as it tabulated the results, saving teachers from having to handcount paper ballots. Because handcounting ballots is so tedious, the results were likely more accurate using the computer. All teachers realized that technology may be used to assist them in specific tasks. Both participants moved from teaching to administrative roles prior to project implementation. Although the program was completed, it has not been shared with pre-service teachers. The higher education component of the project was supposed to be implemented Winter Quarter, 1997 with Middle Grades Toss pre-service teachers. Dr. Smith did not teach Winter Quarter due to a reassignment. At the beginning of 1996-97 academic year, she was appointed to serve in the position of Acting Chair of the Department of Secondary and Middle Grades. and was unable to fulfill conditions of the project as stipulated in the grant; since I did not teach TOSS as previously scheduled.	
Project Highlights	Students did experience democracy through technology. Students were excited to utilize the computer for voting. The election process went very smoothly. In the first election, over 1100 students voted in the computer lab in a 3 hour period. It was very interesting to note how quickly students "caught" on to using the program. Students voted in the second election in under 2 hours. The project has great potential and I am most appreciative that the grant afforded me an opportunity to collaborate in a technology project with Mr. Roy Perren, who is an outstanding professional in the public schools. Without grant funding, I am sure that we would not have been able to establish the foundation for such an important partnership.
Information Dissemination • Planned: DOE Educational Technology Conference at KSU on October 4, 1997.	

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CLASSROOM TECHNOLOGY INITIATIVE TECHNOLOGY INTEGRATION SURVEY

KSU's Bagwell College of Education wants to know more about technology being used in classrooms throughout this area. By finding out more about your school systems' use of technology, we will be able to better prepare our education students...our communities' teachers of tomorrow.

We appreciate your taking time out of your busy schedule to answer these questions. If you have any reports that would provide this information or other information regarding your systems' integration of technology, please send a copy to:

Beverley Taylor, Coordinator
Classroom Technology Initiative
Kennesaw State University
Bagwell College of Education
1000 Chastain Road
Kennesaw, GA 30144
FAX: 770-423-6527

1. How would you rate the use of instructional technology in your school system?

- ☐ Among the best in the U.S.
- ☐ Better than average
- ☐ Average
- ☐ Less than average
- ☐ Little or none

2. Rank order the following subject areas (1-Highest) for highest integration of technology into its curriculum:

- ___ Math
- ___ Social Studies
- ___ Language Arts
- ___ Science
- ___ Other: _____

3. Rank order the following grade levels (1-Highest) for highest integration of technology into its curriculum:

- ___ K-2
- ___ 3-5
- ___ 6-8
- ___ 9-12
- ___ Equivalent at all levels

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SOFTWARE

4. What are the primary uses of software/courseware by teachers in your school system. Check all that apply. Mention a few of the most popular package(s) used.

- ☐ Word Processing
% of Teachers Using: _____
Software Package(s) Used: _____

- ☐ Computerized Grading
% of Teachers Using: _____
Software Package(s) Used: _____

- ☐ Database
% of Teachers Using: _____
Software Package(s) Used: _____

- ☐ Spreadsheet
% of Teachers Using: _____
Software Package(s) Used: _____

- ☐ Off-the-Shelf Software
% of Teachers Using: _____
Software Package(s) Used: _____

- ☐ Linear Presentations (PowerPoint, Persuasion, etc.)

% of Teachers Using: _____

Software Package(s) Used:

- ☐ Interactive Multimedia (HyperStudio, Authorware)

% of Teachers Using: _____

Software Package(s) Used:

- ☐ VHS/S-VHS Tapes

% of Teachers Using: _____

Courseware Package(s) Used:

- ☐ Laserdisc

% of Teachers Using: _____

Courseware Package(s) Used:

- ☐ CD-ROM

% of Teachers Using: _____

Courseware Title(s) Used:

- ☐ CD-I

% of Teachers Using: _____

Courseware Package(s) Used:

HARDWARE

5. What are the primary uses of hardware by teachers in your school system. Check all that apply. Estimate the percentage of teachers using each of these technologies.

- ☐ Printer
% of Teachers Using: _____
- ☐ Overhead Projector
% of Teachers Using: _____
- ☐ Slide Projector
% of Teachers Using: _____
- ☐ TV/VCR
% of Teachers Using: _____
- ☐ Video Camera
% of Teachers Using: _____
- ☐ Calculators
% of Teachers Using: _____
- ☐ Calculator-Based Laboratories & Probes
% of Teachers Using: _____
- ☐ LCD Panel
% of Teachers Using: _____
- ☐ Scan Converter
% of Teachers Using: _____
- ☐ Apple/Macintosh Computer
% of Teachers Using: _____
- ☐ IBM/Compatible Computer
% of Teachers Using: _____
- ☐ Other type of Computer: _____
% of Teachers Using: _____
- ☐ Integrated Learning System
% of Teachers Using: _____
Type: _____

NETWORKING

5. What are the primary uses of networking and other technologies by teachers in your school system. Check all that apply.

- ☐ LAN Printer Sharing
% of Teachers Using: _____
- ☐ Modem Access
% of Teachers Using: _____
Communication Package(s) Used:

- ☐ Internet Access via WAN
% of Teachers Using: _____
Internet Provider(s) Used:

- ☐ E-Mail
% of Teachers Using: _____
E-Mail Software Program(s) Used:

- ☐ LISTSERVS (online subscribed newsgroup)
% of Teachers Using: _____
Group: _____
- ☐ GSAMS (Videoconferencing)
% of Teachers Using: _____
Program(s) & Course(s):

- ☐ Satellite Downlink
% of Teachers Using: _____
Program(s) & Course(s):

TECHNOLOGY SKILLS

6. In your opinion, what are the technology skills required by teachers in contemporary classrooms? What should every teacher know about technology?

7. In your opinion, what technology should be available in contemporary classrooms?

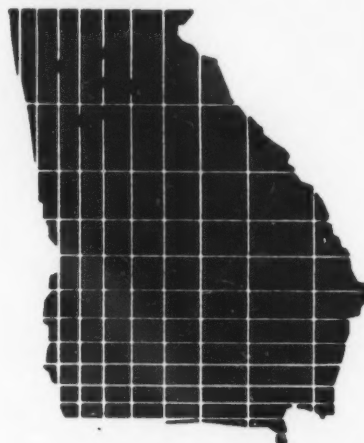
***Instructional Technology Survey of
Six School Systems
in Atlanta's
Northwest Corridor***

by Kennesaw State University
Bagwell College of Education
as part of the
Classroom Technology Initiative
a Collaborative Coca-Cola Grant Project
June 1997



**School Systems Surveyed
in 1995 and in 1997**

- ◆ Bartow County Schools
- ◆ Cartersville City Schools
- ◆ Cherokee County Schools
- ◆ Cobb County Schools
- ◆ Marietta City Schools
- ◆ Paulding County Schools



Survey Topics

*The Technology Integration Survey
addressed the following areas:*



- ◆ Software
- ◆ Hardware
- ◆ Networking
- ◆ Skills
- ◆ Classrooms

How each school system rates its use of instructional technology

Between 1995 and 1997...

- ◆ the two school systems who had perceived they were "Among the Best in the U.S. in 1995," now rated themselves as "Better than Average."
- ◆ one school systems perceived they had improved from 1995 as "Better than Average" to "Among the Best in the U.S."
- ◆ three school systems perceived they had stayed about the same or improved slightly from 1995 when they were "Average" to 1997 when they were "Better than Average."

**What software and
courseware are used
by teachers in
your school system?**

Software Use by All Counties

- ◆ **VHS is the most popular form of technology used**
 - All 6 school systems reported that more than 90% of teachers use videos
 - All 6 school systems averaged more than 90% in identifying VCRs as a technology used by teachers.

Word Processing Software

- ♦ The 6 school systems estimated that 60-80% of teachers use word processing software, including:

- Microsoft Word
(mentioned more often in 1997)
- AmiPro
- Claris Works
- Microsoft Works
- WordPerfect
--various versions

Computerized Grading Programs

- ♦ Use of computerized grading program varies by school system:

- System-wide Approach
- OSIRIS & ARGUS
- Excelsior Gradebook
- Integrate
- SASI

Database & Spreadsheet Software

- ◆ Use of database and spreadsheet software increased from an estimated 10-20% of teachers in 1995 to 40-50% in 1997 with the following database and/or spreadsheet software programs being most prevalent:

- Microsoft Access
- Microsoft Excel
- Claris Works
- Microsoft Works

Presentation & Multimedia

In 1997, schools systems indicated a slightly larger percentage (15%) of teachers using presentation and/or multimedia programs than in 1995 (10%).

- ◆ #1 Presentation--
PowerPoint

- ◆ #1 Multimedia--
HyperStudio

- ◆ Other Presentation--
Persuasion, KidPix,
KidPix Studio

- ◆ Other Multimedia--
Compel, Hypercard,
Multimedia Workshop,
Action

Off-the-Shelf Software

- ◆ Statistics on the use of off-the-shelf software increased substantially. School systems mentioned encyclopedias, atlas, library resources, and others but also reported:
 - ◆ too numerous to mention
 - ◆ too many to count
 - ◆ 60 titles or more!!!



CD-ROM

It became more difficult to distinguish between CD-ROM and off-the-shelf software since more and more titles are available in CD-ROM format.



Laserdiscs

- ◆ Laserdiscs varied between school systems. Some systems reported increased use of laserdiscs from 1995 to 1997 while others reported decreased use of laserdiscs. Titles included:

- Windows on Science/Math
- National Geographic
- Eyes on the Prize
- Columbus Illuminated Books

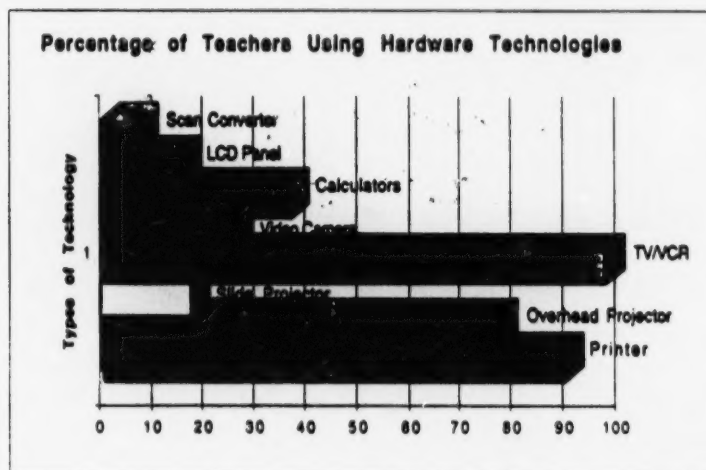
Integrated Learning System

- ◆ All school systems reported using an integrated learning system but reported teachers' use varied from 5% to 75%.

- ◆ Computer Curriculum Corporation (CCC)
- ◆ IBM TLC
- ◆ Jostens
- ◆ Others: Edunetics, TLC, Wasath, Ideal

What are the primary uses of hardware by teachers in your school system?

Hardware Used by Teachers



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Computers Used by Teachers

Four of the six school systems reported a majority of Windows computers used by teachers

In the two school systems where the majority of teachers use Macintosh computers the percentage had decreased slightly from 1995 to 1997, while use of Windows compatible computers had increased slightly.

Technology Coordinators were asked...

**What are the primary uses of
networking and other
technology by teachers in
your school system?**

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Networking Use by Teachers

♦ E-Mail/LISTSERVS:

- Use of e-mail had increased significantly from 1995 to 1997 with some systems reporting no teachers using e-mail to current use between 50-90%

♦ Internet

- A similar increase in internet access took place from 1995 to 1997 with systems reporting changes from 0-25% to 50-90% of teachers using the Internet.

Technology Coordinators were asked:
What are the technology skills
required by teachers in contemporary
classrooms?

What should every teacher know about
technology?

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Technology Skills Required of Teachers

- ◆ All 6 school systems recognize the need for improvement in classroom technology
- ◆ Telecommunications skills were mentioned specifically in 1997

Teachers Need Skills

- ◆ Integrating technology was emphasized over having specific technology skills in 1995; however in 1997, technology coordinators indicated teachers should have skills including:
 - ◆ Basic Productivity
 - ◆ Integrating into Classroom
 - ◆ Navigate Operating System
 - ◆ Minor troubleshooting
 - ◆ Installing and using CD-ROMs

Technology Skills Needed

- ◆ Where, why, and how to retrieve information in support of learning
- ◆ Basic understanding/working knowledge of computers to reduce computer "phobia."
- ◆ Change indicated from 1995 when it was stated "Technical expertise is NOT essential"
- ◆ Brave, open-minded teachers who consider releasing the *potential* of technology in the classroom

Technology Coordinators are asked

What technology
should be available in
contemporary classrooms?

Availability of Technology

- ◆ All 6 school systems recognize the need for technology accessible in the classroom
- ◆ Classroom teachers should have access to everything available in a home or office so that whatever the information needs--the tools are available

Classroom Technology Comments

- ◆ It should be configured on a class by class basis. We should give the teacher the sets they need to teach with. We should not arbitrarily give all classrooms the same number of computers or type of technologies. This is very inefficient!
- ◆ Online classrooms with telecommunications capabilities to provide an information rich, globally connected classroom and opportunities for teachers ongoing professional development.

Classroom Technology Comments

- ♦ Every class should have multiple workstations networked to multiple file servers and printers and CD-ROM towers. Each school should be inter-connected for communication and resource sharing. Internet access would be easier and **LESS EXPENSIVE** to take to each classroom if schools were interconnected.

Classroom Technology Possibilities

- | | |
|---|---|
| ♦ Teacher's Station <ul style="list-style-type: none">- Laptop/Projection to allow working at home | ♦ Instructional Software via laser disc, VHS, or CD-ROM |
| ♦ Large Screen/Monitor for projecting | ♦ Fax/Modem/Telephone |
| ♦ Multiple student workstations in <i>every</i> classroom <ul style="list-style-type: none">- 5-10 student workstations for group projects & research | ♦ Color Printer |
| | ♦ Scanner |
| | ♦ Connection to network (school at least; district or internet ideal) |
| | ♦ Satellite access |

Effective use of technology

...starts with teacher and
the concept of resources
needed for effective
teaching and learning



Special thanks to the following:

Lisa Gibble, Bartow County Schools

Sheryl McDonald, Cartersville Schools

Jackie Hopkins, Cherokee County Schools

Beverly Thrasher, Cobb County Schools

David Pickering, Marietta City Schools

Chris Ragsdale, Paulding County Schools